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A New Class of Ferroelectrics: Acid Selenites:* R. Pepinsky, K. Vedam, Y. Okaya and F. Unterleitner, The Pennsylvania State University.—

Optical observation of a reversible transition in potassium acid selenite has led to the dielectric examination of other acid selenites. Two new ferroelectric species have therewith been discovered: $LiH_3(SeO_3)_2$, ferroelectric at room temperature; and $NaH_3(SeO_3)_2$, ferroelectric below -75°C.

$LiH_3(SeO_3)_2$ shows well-saturated square hysteresis loops over the temperature range from -190°C to +80°C. At room temperature the spontaneous polarization is 10.0 microcoulombs/cm^2, and the coercive field is 1.5kv/cm. X-ray observations reveal monoclinic symmetry, space group Pn, with $\underline{a}$ = 6.255 A, $\underline{b}$ = 7.899 A, $\underline{c}$ = 5.443 A, $\beta = 105°23'$. The polar axis is perpendicular to the (001) plane. The material appears to be of practical importance.

$NaH_3(SeO_3)_2$ is not isomorphous with $LiH_3(SeO_3)_2$. In the room-temperature phase the symmetry is monoclinic, space group $P2_1/a$, with $\underline{a}$ = 11.77 A, $\underline{b}$ = 4.84 A, $\underline{c}$ = 5.60 A, $\beta = 118.5°$. The ferroelectric phase has triclinic symmetry (space group P1; if axes are denoted as for room-temperature phase, space group C1). The polar direction is along [310], referred to the monoclinic phase.

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